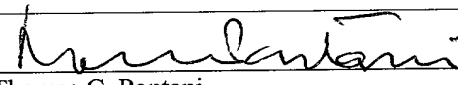


JC07 Rec'd PCT/PTO 04 MAR 2002

FORM PTO-1390 (REV 10-94)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		DOCKET #: 5067-20PUS
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				
				U.S. APPLICATION NO. (If known, see 37 CFR 1.5) 10/070085
INTERNATIONAL APPLICATION NO. PCT/DE00/02996		INTERNATIONAL FILING DATE 29 August 2000		PRIORITY DATE CLAIMED 08 September 1999
TITLE OF INVENTION Electric Precision Injection Unit				
APPLICANT(S) FOR DO/EO/US Holger SCHMIDT				
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:				
<ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371 3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1). 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US) 6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). 7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) <ol style="list-style-type: none"> a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An executed oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). <p>Items 11. to 16. Below concern other document(s) or information included:</p> <ol style="list-style-type: none"> 11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 12. <input checked="" type="checkbox"/> An executed assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input type="checkbox"/> A substitute specification. 15. <input type="checkbox"/> A change of power of attorney and/or address letter. 16. <input checked="" type="checkbox"/> Other items or information (<i>specify</i>): PCT Publication Sheet, Int'l Preliminary Examination Report, Int'l Search Report, PCT Request 				

U.S. APPLICATION NO. (if known, see 37 C.F.R. 1.5) 10/070085		INTERNATIONAL APPLICATION NO. PCT/DE00/02996		ATTORNEY'S DOCKET NUMBER 5067-20PUS	
17.[x]The following fees are submitted:					
Basic National Fee (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or JPO\$890.00 International preliminary examination fee paid to USPTO (37 CFR 1.482).....\$710.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)).....\$740.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO.....\$1040.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4)\$100.00					
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$	890.00
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$	-0-
Claims	Number Filed	Number Extra	Rate		
Total Claims	5 - 20 =	0	x \$18.00	\$	-0-
Independent Claims	1 - 3 =	0	x \$84.00	\$	-0-
Multiple dependent claim(s) (if applicable)			+ \$280.00	\$	-0-
TOTAL OF ABOVE CALCULATIONS =				\$	890.00
Reduction of 1/2 for filing by small entity, if applicable.				\$	-0-
SUBTOTAL =				\$	890.00
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$	-0-
TOTAL NATIONAL FEE =				\$	890.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by the appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$	40.00
TOTAL FEES ENCLOSED				\$930.00	
				Amount to be refunded:	\$
				charged:	\$
a. [x] Two checks in the amounts of \$890.00 and \$40.00 to cover the above fees are enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. 03-2412 in the amount of \$_____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. [x] The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 03-2412. A duplicate copy of this sheet is enclosed.					
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.					
SEND ALL CORRESPONDENCE TO: <u>Thomas C. Pontani</u> Cohen, Pontani, Lieberman & Pavane 551 Fifth Avenue, Suite 1210 New York, New York 10176			 <u>Thomas C. Pontani</u> Registration Number: 29,763 March 4, 2002 Tel: (212) 687-2770		

By Express Mail # EV072606466US · March 4, 2002

Attorney Docket # 5067-20PUS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re National Phase PCT Application of

Holger SCHMIDT

International Appln. No.: PCT/DE00/02996

International Filing Date: 29 August 2000

For: Electric Precision Injection Unit

PRELIMINARY AMENDMENTAssistant Commissioner for Patents
Washington, D.C. 20231**BOX PCT**

S I R:

Prior to examination of the above-identified application please amend the application as follows:

In the Specification:

Please delete the subtitle beginning at page 1, line 2, and insert the following subtitles:

--BACKGROUND OF THE INVENTION1. Field of the Invention--

Please insert at page 1, after line 5, the following subtitle:

--DESCRIPTION OF THE RELATED ART--

Please replace the paragraph beginning at page 1, line 22, with the following rewritten paragraph:

--EP 0 427 866, to which U.S. Patent No. 5,129,808 corresponds, describes an injection unit with a metering motor and an injection motor which is constructed as a dual-platen injection unit. The injection unit has a fixed platen in which two ball spindles are secured axially and a movable platen with two linear guides which are connected with one another via the ball spindles and associated ball spindle nuts. The metering motor is fastened to the movable platen and drives the worm (in rotation) via a belt drive.--

Please insert at page 2, after line 4, the following subtitle:

--SUMMARY OF THE INVENTION--

Please insert at page 3, after line 5, the following subtitle:

--BRIEF DESCRIPTION OF THE DRAWINGS--

Please insert at page 3, after line 8, the following subtitle:

--DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS--

Please replace the paragraph beginning at page 3, line 27, with the following rewritten paragraph:

--The housing 11 has a block 12 which is received in an axially extending groove in the screw sleeve 8 and prevents the screw sleeve 8 from rotating along during rotation of the spindle nut 9 and shaft 1.--

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In the Claims:

Please cancel claims 1-5 and enter new claims 6-10, as follows:

--6. (New) An injection molding apparatus comprising
a housing,
a screw sleeve which is axially displaceable with respect to said housing,
means for preventing rotation of said screw sleeve with respect to said housing,
a shaft which is mounted concentrically in said screw sleeve and is axially fixed
but rotatable with respect to said screw sleeve, said shaft having one end for carrying a worm in
a molding cylinder and an axially opposed end,

a spindle nut which cooperates with said screw sleeve to axially displace said
screw sleeve with respect to said housing when said spindle nut is rotated,

a first drive device for rotating said spindle nut, thereby axially displacing said
worm,

an axial coupling on said opposed end which is rotatably fixed but axially
displaceable with respect to said opposed end, and

a second drive device for rotating said axial coupling, thereby rotating said
worm.--

--7. (New) An injection molding apparatus as in claim 6 wherein each of said
first and second drive devices comprises an electric motor.--

--8. (New) An injection molding apparatus as in claim 6 wherein each said
electric motor is a servo motor excited by permanent magnets.--

--9. (New) An injection molding apparatus as in claim 6 wherein said opposed
end of said shaft is splined.--

--10. (New) An injection molding apparatus as in claim 6 wherein said screw sleeve is constructed as a ball roll spindle.--

In the Abstract

Please delete the Abstract and insert the "Abstract of the Disclosure" attached hereto.


REMARKS

The specification has been amended to add headings and improve grammar to place the application in better form for examination. Other changes are for consistency with other parts of the specification and do not represent new matter. Newly submitted claims are believed to comply with 35 U.S.C. §112.

Early consideration and action on the merits are solicited.

Any additional fees or charges required at this time in connection with the application may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,
COHEN, PONTANI, LIEBERMAN & PAVANE

By: 
Thomas C. Pontani
Reg. No. 29,763
551 Fifth Avenue, Suite 1210
New York, N.Y. 10176
(212) 687-2770

4 March 2002

204060-98002001

ABSTRACT OF THE DISCLOSURE

An injection molding device with an injection molding cylinder in which is arranged a coaxial worm that is rotatable and axially displaceable by drive devices. A spindle nut rotatable by a first drive device is mounted in a housing and cooperates with a screw sleeve which is axially displaceable during rotation of the spindle nut but is fixed against rotation during axial displacement. Further, a shaft is mounted in the interior of the screw sleeve and is connected at one end to the worm and has at the other end an axial coupling, one of whose coupling parts communicates with a second drive device.

2007-03-05 10:00:00

AMENDMENTS TO THE SPECIFICATION SHOWING CHANGES

In the Specification:

The paragraph beginning at page 1, line 22, has been rewritten as follows:

--EP 0 427 866, to which U.S. Patent No. 5,129,808 corresponds, describes an injection unit with a metering motor and an injection motor which is constructed as a dual-platen injection unit. The injection unit has a fixed platen in which two ball spindles are secured axially and a movable platen with two linear guides which are connected with one another via the ball spindles and associated ball spindle nuts. The metering motor is fastened to the movable platen and drives the worm (in rotation) via a belt drive.--

The paragraph beginning at page 3, line 27, has been rewritten as follows:

--[The screw sleeve 8 has a screw sleeve rotation-preventing means 12 which is guided in axial direction in a groove-shaped part of the housing 11] The housing 11 has a block 12 which is received in an axially extending groove in the screw sleeve 8 and prevents the screw sleeve 8 from rotating along during rotation of the spindle nut 9 and shaft 1.--

- 1 -

ELECTRIC PRECISION INJECTION UNIT

Description

The invention is directed to a precision injection unit for a machine for producing molded articles with a drive device for the rotation of the worm and a drive device for the axial movement of the worm.

DE 42 06 966 discloses an injection unit with only one drive motor for the axial and radial movement of the worm. The rotating movement of the worm is carried out by the motor via a belt drive, one belt drive being connected with the worm shaft by a splined shaft section in a positive engagement, but so as to be axially displaceable.

The rear part of the worm shaft is constructed as a ball spindle and engages with the corresponding spindle nut. The ball spindle nut is supported in the frame so as to be rotatable and can be secured by a claw coupling relative to the frame. A spring element constantly presses the ball spindle with the spindle nut axially against the frame.

During the plastifying process for plastic, the coupling is not engaged. During the injection process, the coupling is activated, so that the worm is compelled to move axially when the motor rotates. Only a very slight small axial lift or stroke is achieved in this construction.

Further, it must be viewed as a disadvantage that the worm rotation and the axial position can not be influenced independent from one another.

EP 0 427 866 describes an injection unit with a metering motor and an injection motor which is constructed as a dual-platen injection unit. The injection unit has a fixed platen in which two ball spindles are secured axially and a movable platen with two linear guides which are connected with one another via the ball spindles and associated ball spindle nuts. The metering motor is fastened to the movable platen and drives the worm (in rotation) via a belt drive.

The injection motor is fastened to the fixed platen and drives the two ball spindles via a belt drive for the axial injection movement of the movable platen.

The described injection unit has a complicated mechanical

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construction and, accordingly, a great many movable elements which results in increased maintenance and wear. Since the injection motor must move very massive parts of the injection unit, the mass moment of inertia is also high and accordingly limits effectiveness and efficiency.

Proceeding from the problems and disadvantages described above, the object of the invention is to provide an above-average, economically operating and reliable precision injection unit using features which are known in part.

An extremely compact construction of the drive block of the injection unit which is limited to a minimum of parts is achieved by integrating two drive devices for axial movement and worm rotation, wherein it is possible to achieve a temporary flow of force. High efficiency and high availability are achieved in this way.

A drive shaft with a cylindrical connection for the worm coupling is mounted so as to be freely rotatable at the other end along with a splined shaft section in a screw sleeve with two axial load-bearing capability rolling bearings. The splined shaft section of the shaft engages with a complementary axial splined shaft coupling which is connected, via a gear unit, to the servo motor for the rotating movement of the worm.

The screw sleeve, preferably a planetary roll spindle, engages with a complementary spindle nut. The spindle nut is freely rotatable in the housing of the drive block of the injection unit with two axial load-bearing rolling bearings. A servo motor drives the spindle nut by means of a belt drive and, depending on the rotating direction, the screw sleeve and, therefore, also the plastifying worm moves axially in one or the other direction, since the screw sleeve operates as a means for preventing rotation which is guided in a housing groove and therefore prevents the screw sleeve from participating in rotation.

The axial movement (injection/metering or influencing of the pressure profile of the melt) and the rotation of the worm (plastifying) can be carried out completely independent from one another.

The shortest possible flow of force with the smallest mass moment of inertia combined with high efficiency and low maintenance is achieved by means of this construction.

Only the selected construction length of the screw sleeve, and the length of the splined shaft profile coupling which is adapted to it, limits (a drive block) the possible injection stroke of the worm.

An embodiment example of the invention is shown in the drawings and described in the following.

Fig. 1 is a simplified view of the drive block of the injection unit;

Fig. 2 shows a practical construction;

Fig. 3 shows a section along line A-A.

The shaft 1 has a cylindrical part for the connection of the worm coupling, not shown, at one end and a splined shaft profile at the other end. The shaft 1 is supported in the screw sleeve 8 by the shaft bearings 2 and can rotate independent from it. The radial forces and the high axial forces occurring particularly during injection are conducted into the screw sleeve 8 by the shaft bearings 2.

The axial splined shaft coupling 3 engages with the splined shaft profile of the shaft 1. The axial splined shaft coupling 3 is fixedly connected with the drive shaft of the gear unit 4 which is screwed to the housing 11. The torque of the motor 7 which is also fastened to the housing 11 is transmitted to the gear unit 4 via the belt drives 5 and 6.

The spindle nut 9 engages with the screw sleeve 8 and is supported in the housing 11 by the spindle nut bearing 10 so as to be rotatable. The high axial forces occurring during the injection are conducted into the housing 11 via the spindle nut bearing 10.

The spindle nut 9 has a flange to which the belt drives 13 and 14 are flanged and the torque can accordingly be transmitted from the gear unit motor 15 fastened to the housing 11 and from the belt drive.

The screw sleeve 8 has a screw sleeve rotation-preventing means 12 which is guided in axial direction in a groove-shaped part of the housing 11 and

prevents the screw sleeve 8 from rotating along during rotation of the spindle nut 9 and shaft 1.

When the spindle nut 9 is set in rotation, the screw sleeve 8 must compulsorily move with the shaft 1 in axial direction.

A pressure sensor is provided at a bearing loaded by axial force for direct instantaneous measurement of axial force.

The arrangement and construction of the drive devices and belt drives are shown particularly in the practical construction shown in Figures 2 and 3.

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Patent Claims

1. Injection molding device with an injection molding cylinder in which is arranged a coaxial worm that is rotatable and axially displaceable by drive devices, characterized in that a spindle nut (9) which is rotatable by a first drive device (15) is mounted in a housing (11), in that the spindle nut (9) cooperates with a screw sleeve (8) which is axially displaceable during rotation of the spindle nut (9), wherein a means for preventing rotation (12) is connected with the housing (11), in that a shaft (1) is mounted in the interior of the screw sleeve (8) and is connected at one end to the worm (16) and has at the other end an axial coupling (3), one of whose coupling parts communicates with a second drive device (7).

2. Injection molding device according to claim 1, characterized in that the drive device (15) provided for the axial displacement of the worm and the drive device (7) provided for rotation of the worm are electric motors.

3. Injection molding device according to claim 1, characterized in that the electric motors are servo motors which are excited by permanent magnets.

4. Injection molding device according to claim 1, characterized in that the axial coupling (3) has a serration.

5. Injection molding device according to claim 1, characterized in that the screw sleeve (8) is constructed as a ball roll spindle.

Abstract

The invention is directed to an injection molding device with an injection molding cylinder in which is arranged a coaxial worm that is rotatable and axially displaceable by drive devices. A spindle nut (9) which is rotatable by a first drive device (15) is mounted in a housing (11) and the spindle nut (9) cooperates with a screw sleeve (8) which is axially displaceable during rotation of the spindle nut (9). A means for preventing rotation (12) is connected with the housing (11). Further, a shaft (1) is mounted in the interior of the screw sleeve (8) and is connected at one end to the worm (14) and has at the other end an axial coupling (3), one of whose coupling parts communicates with a second drive device (7).

Figure 1

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Fig.1

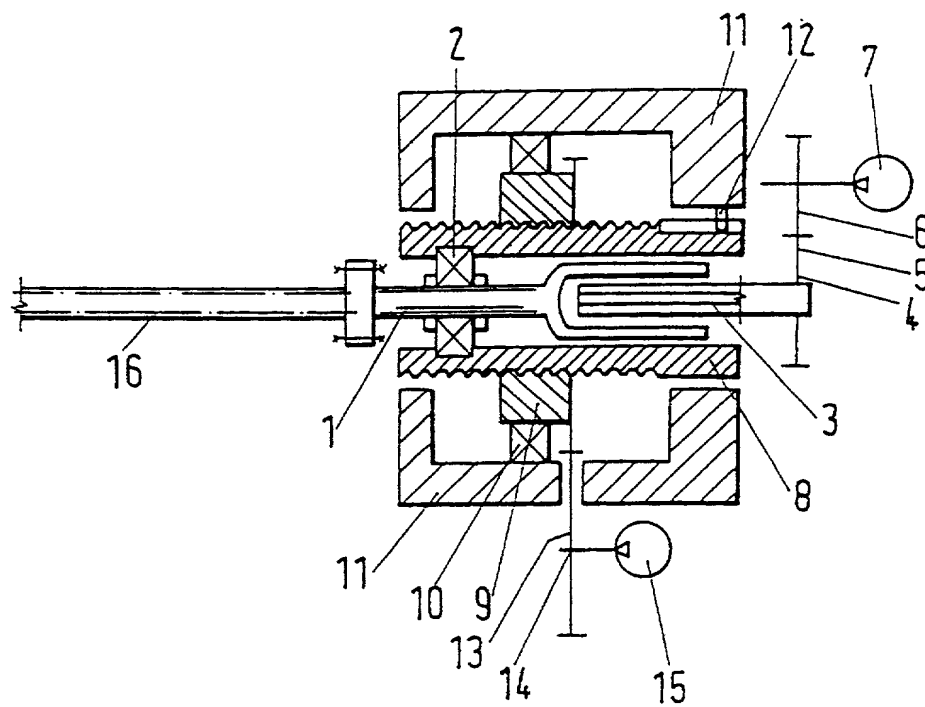


Fig.2

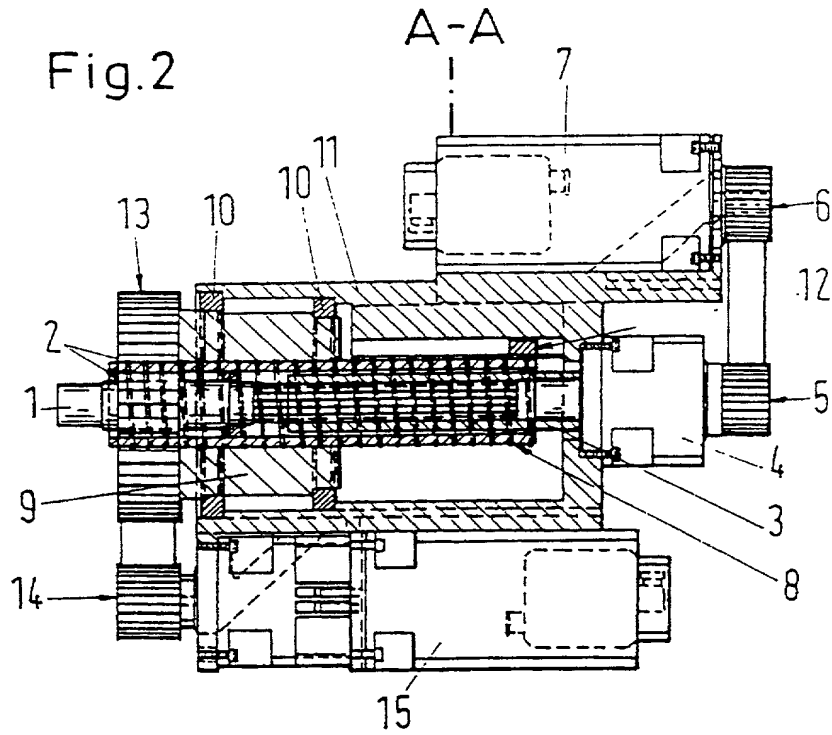
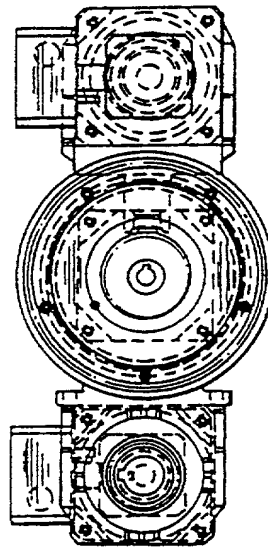


Fig.3



COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY
Includes Reference to PCT International Applications

Attorney's Docket
No.5067-20PUS

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

ELECTRIC PRECISION INJECTION UNIT

the specification of which (check only one item below)

☐ is attached hereto

☐ was filed as United States application

Serial No.

on

and was amended

on _ (if applicable).

☒ was filed as PCT international application

Number PCT/DE00/02996

on 29 August 2000

and was amended under PCT Article 19

on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of the application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

PRIOR FOREIGN/PCT APPLICATIONS AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:

Country (if PCT, indicate "PCT")	Application Number	Date of Filing (day, month, year)	Priority Claimed Under 35 U.S.C. 119	
Germany	199 43 709.2	8 September 1999	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
PCT	PCT/DE00/02996	29 August 2000	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
			<input type="checkbox"/> YES	<input type="checkbox"/> NO
			<input type="checkbox"/> YES	<input type="checkbox"/> NO
			<input type="checkbox"/> YES	<input type="checkbox"/> NO
			<input type="checkbox"/> YES	<input type="checkbox"/> NO

Combined Declaration for Patent Application and Power of Attorney (Continued) (Includes Reference to PCT International Applications)				Attorney's Docket 5067-20PUS	
I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:					
PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. 120:					
U.S. APPLICATIONS			STATUS (check one)		
U.S. APPLICATION NUMBER	U.S. FILING DATE	PATENTED	PENDING	ABANDONED	
PCT APPLICATIONS DESIGNATING THE U.S.					
PCT APPLICATION NO.	PCT FILING DATE	U.S. SERIAL NUMBERS ASSIGNED (if any)			
PCT/DE00/02996	29 August 2000		x		
POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith (<i>List name and registration number</i>)					
MYRON COHEN, Reg. No. <u>17,358</u> ; THOMAS C. PONTANI, Reg. No. <u>29,763</u> ; LANCE J. LIEBERMAN, Reg. No. <u>28,437</u> ; MARTIN B. PAVANE, Reg. No. <u>28,337</u> ; MICHAEL C. STUART, Reg. No. <u>35,698</u> ; KLAUS P. STOFFEL, Reg. No. <u>31,668</u> ; EDWARD WEISZ, Reg. No. <u>37,257</u> ; VINCENT M. FAZZARI, Reg. No. <u>26,879</u> ; JULIA S. KIM, Reg. No. <u>36,567</u> ; ALFRED FROEBRICH, Reg. No. <u>38,887</u> ; ALFRED H. HEMINGWAY, JR., Reg. No. <u>26,736</u> ; KENT H. CHENG, Reg. No. <u>33,849</u> ; YUNLING REN, Reg. No. <u>47,019</u> ; ROGER S. THOMPSON, Reg. No. <u>29,594</u> ; BRICE FALLER, Reg. No. <u>29,532</u> ; DAVID J. ROSENBLUM, Reg. No. <u>37,709</u> ; TONY CHEN, Reg. No. <u>44,607</u> ; ELI WEISS, Reg. No. <u>17,765</u> .					
Send correspondence to: <u>Thomas C. Pontani</u> <u>Reg. No. 29,763</u> <u>Cohen, Pontani, Lieberman & Pavane</u> <u>551 Fifth Avenue, Suite 1210</u> <u>New York, New York 10176</u>			Direct Telephone calls to: (name and telephone number) <u>Thomas C. Pontani</u> <u>(212) 687-2770</u>		
201	FULL NAME OF INVENTOR	FAMILY NAME <u>SCHMIDT</u>	FIRST GIVEN NAME <u>Holger</u>	SECOND GIVEN NAME	
	RESIDENCE, CITIZENSHIP	CITY <u>Bad Frankenhausen</u>	STATE OR FOREIGN COUNTRY <u>Germany</u>	COUNTRY OF CITIZENSHIP <u>Germany</u>	
	POST OFFICE ADDRESS	POST OFFICE ADDRESS <u>Am Wallgraben 30</u>	CITY <u>Bad Frankenhausen</u>	STATE & ZIP CODE/COUNTRY <u>Germany 06567</u>	
202	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME	
	RESIDENCE, CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP	
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY	

Combined Declaration for Patent Application and Power of Attorney (Continued) (Includes Reference to PCT International Applications)				Attorney's Docket 5067-20PUS
2 0 3	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
	RESIDENCE, CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY
<p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.</p>				
SIGNATURE OF INVENTOR 201 <i>Robert R. M.</i>		SIGNATURE OF INVENTOR 202		SIGNATURE OF INVENTOR 203
DATE <i>February 14, 2002</i>		DATE		DATE

"204030" 5800/2001